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ABSTRACT

Although student enrollments in cooperative education constitute only about 8 percent of all high school students, about half of all high schools provide such opportunities. In practically all co-op programs, the employer ensures supervision, on-the-job learning, and evaluations that will influence students' grades; coordinators have released time to visit job sites; and each student has a written plan. A 20 percent drop in enrollments has been noted from the late 1970s to the late 1980s. Cooperative education programs vary widely, in terms of work schedules, how much work experience is provided, and whether work assignments begin in grade 10, 11, or 12. Some successful programs include the following: a health academy; an occupational cluster approach, integrating academic and vocational instruction; a tech prep program; an off-site occupational program; a capstone experience; an academic track for co-op students; a program with high admissions standards; and a reengineered 1913 program. Although little well-structured evaluation has been conducted, available data show higher wages, higher employment, and satisfied employers. Recommendations for improvement are as follows: more careful student selection; better placement of students in jobs; more emphasis on developing a "training sponsor" at each employer site; better use of training agreements; better training plans; regular visits to the worksite by teacher coordinators; better student evaluation; structural changes in curriculum; and better use of advisory committees. (YLB)

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A POLICY ISSUE PERSPECTIVE

POLICY INFORMATION CENTER
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Cooperative Education in High School:

Promise and Neglect

by Paul E. Barton

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Cooperative Education in High School: Promise and Neglect

By

Paul E. Barton
Educational Testing Service

July 1996

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Preface

As the nation tries to piece together a complete system for the transition from school to work it needs to include cooperative education, improving it where needed. Cooperative education in the United States has a history going back to the beginning of this century. This report describes where it came from, where it is today, and where it can be improved.

This report is published in the Policy Information Center's Policy Issue Perspective series, which brings research to bear on important policies and practices, and encourages authors to convey their professional judgment on policy issues.

Paul E. Barton
Director
Policy Information Center

Acknowledgments

This report was reviewed by Bryna Shore Fraser, Gregg B. Jackson, and David Stern.

It draws on the research of many people and organizations, including the National Assessment of Vocational Education and its longitudinal study, the National Assessment of Vocational Education survey, the National Center for Education Statistics, the General Accounting Office, the Manpower Demonstration Research Corporation, the National Institute for Work and Learning, Jobs for the Future, the Office of Technology Assessment, and the Institute for Educational Leadership.

At ETS, Richard Coley designed the graphics, Amanda McBride was the editor, and Carla Cooper provided desktop publishing.

Introduction

Throughout most of this century, the United States has had significant experience with the use of the worksite in what has been called cooperative education or cooperative vocational education.

The 1990s has seen a growth, or even a semi-explosion, of interest in "work-based learning" and "youth apprenticeship." There have been dozens of demonstration projects, and new federal legislation—the School to Work Opportunities Act. That act divides into the work side, the school side, and "connecting" activities. The Perkins Vocational Education Act referred to "youth apprenticeship" six times. However, the oldest and most prevalent form of work-based learning, cooperative education, has not fared well over the last 20 years.

Throughout most of this century, the United States has had significant experience with the use of the worksite in what has been called cooperative education or cooperative vocational education.[1] Cooperative education in the United States seems to have originated at the college level in 1906 at the University of Cincinnati. In 1913, through the effort of leading employers, Dayton, Ohio, launched a high school that operated entirely on the cooperative principle. Students spent half their time at the workplace in supervised training and half their time in the schoolroom. Although it has experienced many changes, this program is still in operation today.

Ad hoc surveys at the beginning of the decade place enrollments in high school cooperative education at around 400,000. And about 150,000 high school graduates have credits in cooperative education, as disclosed by transcript studies. (The 400,000 includes 10th, 11th, and 12th grades, as well as students who drop out before completing high school.) While these numbers are down sharply from the 1970s, they are still substantial, particularly when compared to any other high school worksite program. It is a foundation that we can and should build on.

Cooperative education has shown staying power, despite the decline, and despite the fact that it has been seriously neglected. Support for it has been removed in the federal vocational education legislation (the Perkins Act). The Department of Education stopped tracking enrollments. It is not mentioned in the *Condition of Education* or *Education Digest*. It has shared in the low reputation often

[1]Also popularly called "co-op" education; co-op and cooperative education have been used interchangeably in this report.

held in the past about vocational education. It has, throughout most of this century, been opposed by many vocational educators, who thought skill instruction should remain in the classroom. It is hard to find a champion for cooperative education, despite the emphasis given recently to the school-to-work transition.

This report springs from the belief that we should take this American version of "dual enrollment" seriously, examine what we have, and improve and expand it. And we should start measuring it regularly; as Daniel Patrick Moynihan said 30 years or so ago, in the United States we only do what we measure. The common expression is "out of sight, out of mind."

This report springs from the belief that we should take this American version of "dual enrollment" seriously, examine what we have, and improve and expand it.

This is not a blind advocacy of all that now exists under the label of cooperative education. Cooperative education, as it exists today, is very uneven in quality. But we are in a renewal era in education for the career bound, and in vocational education generally. We should be doing the same in cooperative education.

To set the context for those not familiar with this American experience, a brief word on what good cooperative education might look like is necessary. Many lists of characteristics and principles exist in textbooks used for training teacher coordinators. At least four such books appeared in the 1970s, before cooperative education declined. The following set of principles is from *Cooperative Occupational Education and Work,* by Ralph Mason and Peter Haines, published in 1972.

1. *The primary and overriding purpose is to provide occupational competence at a defined entry level.* Instruction must be geared to a set of *definable performance objectives,* and providing students with financial assistance, or employment, or even the inducement to stay in school must be secondary considerations.

2. The instruction both in school and at the training station is based on the student's career goal.

3. The kind, extent, and sequence of the training station learning experience are correlated closely with the kind, extent, and sequence of the in-school learning experience.

4. Students may elect the cooperative plans only when they possess the employability characteristics acceptable in the marketplace as well as the necessary basic knowledge and skills prerequisite to employment.

5. The employment situation must be truly a training station, where the firm understands and accepts its teaching responsibility and where an individual is given time to act as a training sponsor.

6. The employment conditions are not only legal employment but acceptable by all the other standards of the school.

7. The coordinator has sufficient time to carry out the coordination responsibilities and be accountable for quality education.

8. Instruction is characterized by its individualization, by the use of projects, by remediation as required, and by interaction with programs of a youth organization, such as Distributive Education Clubs of America (DECA).

This report starts with a description of the extent of cooperative education offerings and enrollment trends and levels. A number of examples of programs are described, drawn from some recent case studies. A summary of what is known about high school cooperative education from evaluation studies is provided. Finally, some steps for expanding and improving cooperative education are set forth.

This is a stringent set of principles and we do not know how many existing programs would meet all of them to these authors' satisfaction. But they do provide a guide to identifying quality in cooperative education.

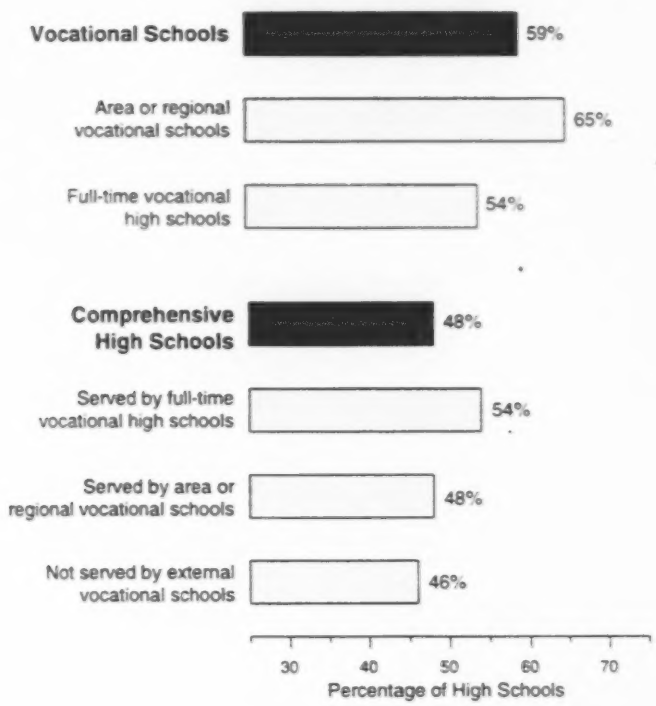
This report starts with a description of the extent of cooperative education offerings and enrollment trends and levels. A number of examples of programs are described, drawn from some recent case studies. A summary of what is known about high school cooperative education from evaluation studies is provided. Finally, some steps for expanding and improving cooperative education are set forth.

High Schools Offering Cooperative Education

While student enrollments in cooperative education are only about 8 percent of all high school students, around half of all high schools provide such opportunities . . .

While student enrollments in cooperative education are only about 8 percent of all high school students, around half of all high schools provide such opportunities—48 percent of comprehensive high schools and 59 percent of vocational schools. These data are shown in Figure 1. The percentage of schools with *some* kind of work experience program is higher; about a fourth of the schools in this survey report having a work experience program other than cooperative education.

Figure 1: Percentage of High Schools Offering Coopertive Education by Type of High School, 1991-1992

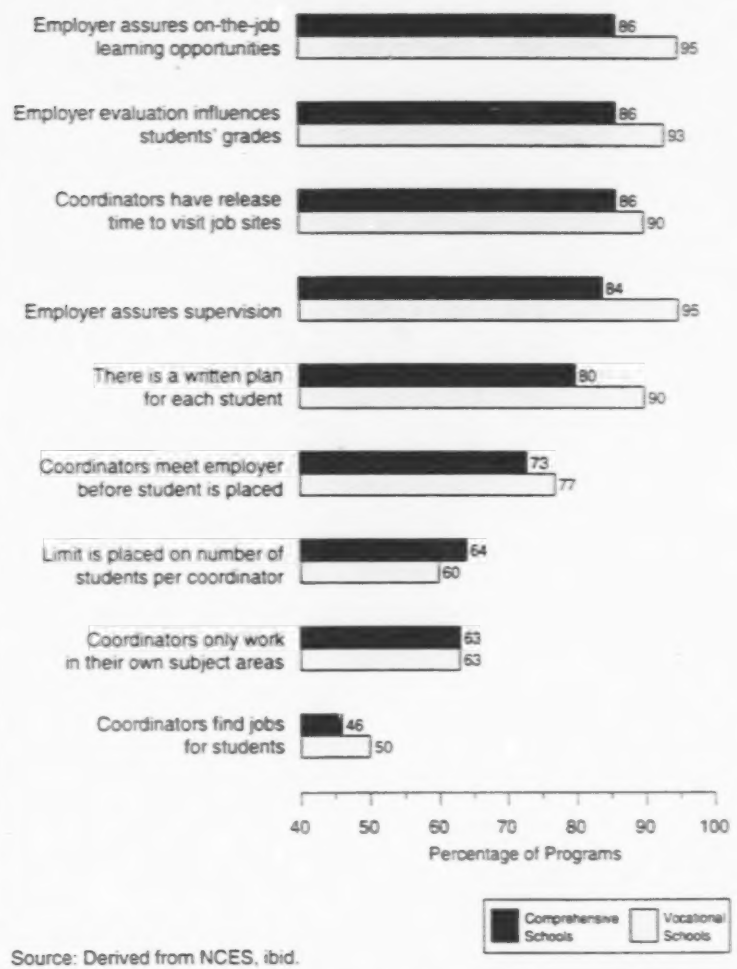


Source: National Center for Education Statistics, *Vocational Education in the United States: The Early 1990s*, Table 98.

The first solid data about cooperative education programs were collected in 1991-1992. In Figure 2, the data show the percentage of cooperative education programs that have a particular feature.

. . . in practically all co-op programs schools report that the employer assures supervision, on-the-job learning, and their evaluations influence students' grades.

Figure 2: Percentage of Cooperative Education Programs with Selected Features, 1991-1992



Source: Derived from NCES, ibid.

As can be seen in Figure 2, in practically all co-op programs schools report that the employer assures supervision, on-the-job learning, and their evaluations influence students' grades. Also, coordinators have release time to visit job sites. (As would be expected, more vocational schools than comprehensive schools have co-op programs.)

In the great majority of programs, there is a written plan for each student, and coordinators actually meet the employer before a student is placed.

In about two-thirds of the programs, there is a limit on the number of students per coordinator and coordinators work only in their own vocational subject areas.

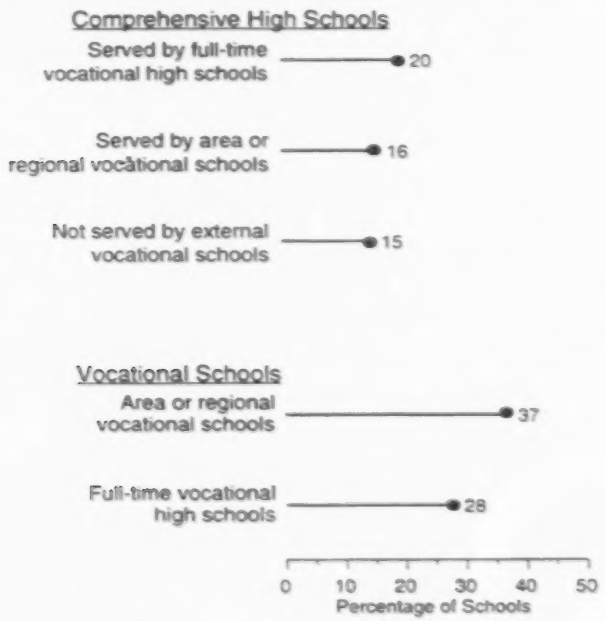
In about half of the programs, coordinators find students jobs, although we don't know that they do this for all students in their programs, or just a few. We presume that in the other half, students are lining up their own jobs.

On paper, most of these programs seem to have the characteristics we would expect of co-op programs. Of course, the survey tells us nothing about quality. For example, are the written plans good ones, are they followed by employers, and do coordinators monitor employers to see if they are following the plans?

Obviously, a fair number of programs do not have such written agreements. There are more where coordinators have too many students to follow and where coordinators are not actually meeting the employers.[2]

We also know whether students must maintain a minimum grade point average to stay in the co-op program. (See Figure 3.) This varies considerably by the type of high school, with area or regional vocational schools the highest.

Figure 3: Percentage of Cooperative Education Programs That Require a Minimum Grade Point Average



Source: Special tabulations provided by the National Center for Education Statistics.

[2]Of course, there will be employers who have had a long association with the school and where it is not necessary to meet them for each student placement.

Where there are minimum grade requirements, employers are more likely to get students with adequate academic preparation.

The data recently made available by the National Center for Education Statistics (NCES) raise the question of whether there are a lot of programs not labeled as cooperative education that in fact have many characteristics of co-op programs. According to the NCES survey, 21 percent of comprehensive high schools and 32 percent of vocational schools have "other work experience programs." When the characteristics of these programs are examined in terms of employer supervision, written plans, coordinators visiting job sites, etc., the pattern is very similar to that for cooperative programs. Of course, some schools with cooperative programs may also have these "other work experience" programs, perhaps under names like internships, so there is likely some overlap.

. . . if we take into account these other work experience programs we can conclude that there are co-op-like programs in up to two-thirds of comprehensive high schools and up to 90 percent of vocational high schools . . .

For example, about four out of five of the schools with co-op programs provide a written plan for each student; the same is true for schools with other work experience programs. About the same percentages of schools with other work experience programs as schools with co-op programs say the coordinators meet with employers before a student is placed. The same is true for most all of the other features of the two approaches.

In any event, if we take into account these other work experience programs we can conclude that there are co-op-like programs in up to two-thirds of comprehensive high schools and up to 90 percent of vocational high schools, depending on the amount of overlap in terms of schools having both approaches.[3] While actual enrollments may be a modest proportion of all high school students, the vast majority of schools have programs. This means also that some employers in most communities have had some experience with co-op-like programs.

[3]We know there is some overlap because 65 percent of area/regional vocational schools report having co-op programs and 40 percent report other work experience programs, adding up to more than 100 percent.

Student Enrollment

The data on enrollments and completions in high school cooperative education have never been particularly good, and data collection was abandoned by the Department of Education in the 1980s. In my own writing in the early 1980s, I quoted figures of around 500,000 for enrollment, which is a considerable level of activity. It clearly has dropped considerably. Bailey and Merrit, writing in 1993, note a 20 percent drop in enrollments from the late 1970s to the late 1980s.

Bailey and Merrit, writing in 1993, note a 20 percent drop in enrollments from the late 1970s to the late 1980s.

This drop would be consistent with two surveys done early in this decade. In a survey of state directors of cooperative education in 1989/90, the General Accounting Office (GAO)[4] estimated that there were about 430,000 students enrolled in co-op programs (about 8 percent of juniors and seniors), and in a 1992 survey by the National Assessment of Vocational Education, 7.7 percent of juniors and seniors were reported enrolled in such programs. Also, there were other students enrolled in co-op-like programs. Concludes Stern et al.: "It would therefore be accurate to say that approximately five percent of students in grades 9-12, or 10 percent of seniors, were in programs which were either called co-op or had all the main features of co-op."[5]

There likely has been some further slippage in enrollments in the first half of the decade. Stone et al., in two major midwest cities they studied, report a decline in one city and disappearance in another. Co-op has been heavily (though not always) linked to vocational education, and that has been in decline.

We now have solid information about the extent to which high school *graduates* participated in cooperative education and work experience programs. This comes from studies of high school transcripts conducted in 1992 by the NCES. The Carnegie Units earned in cooperative education and work experience were published in the fall of 1995 by the NCES.[6] While the report provided the percentage of students taking various vocational and labor market preparation courses for vocational courses, it did not provide comparable information

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[4] *Transition from School to Work: Linking Education and Worksite Training*, General Accounting Office, 1991.

[5] David Stern et al., *School to Work: Research on Programs in the United States*, Washington: Taylor and Francis/The Falmer Press, 1994.

[6] *Vocational Education in the United States: The Early 1990s*, National Center for Education Statistics, November 1995.

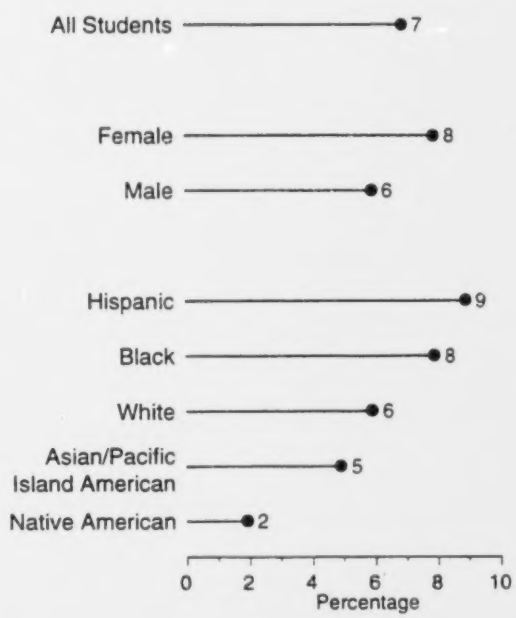
for cooperative education and work experience. The NCES made special tabulations for this Policy Information Center report.

The largest enrollments were among students studying business and office skills and in marketing and distribution.

As can be seen in Figure 4, 7 percent of all graduates had been enrolled in cooperative education in 1992, more females than males. By race and ethnicity, the largest percentage enrolled was among Hispanic graduates, at 9.8 percent, and the smallest was among Native American graduates. Eight percent of Black graduates, 5 percent of Asian graduates, and 6 percent of White graduates were enrolled in some form of cooperative education.

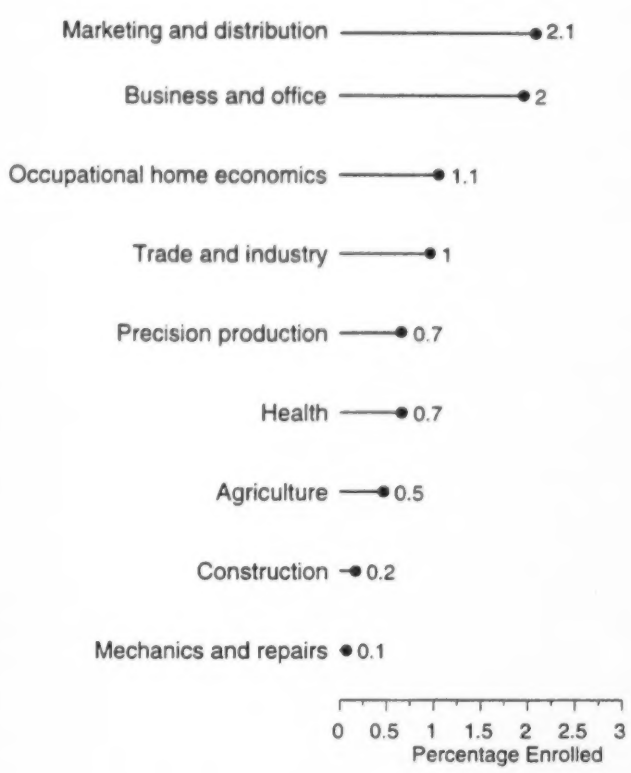
The largest enrollments were among students studying business and office skills and in marketing and distribution. However, as can be seen in Figure 5, there were enrollments in all vocational areas, with the smallest in construction and mechanics and repair. We also know that the higher the number of vocational education courses students take, the higher the percentage of students enrolled in cooperative education—just .9 percent of those with less then two Carnegie Units, compared to almost 20 percent of students with eight or more Carnegie Units.

Figure 4: Percentage of All 1992 Public High School Graduates Enrolled in Cooperative Education, by Sex and Race/Ethnicity



Source: Special tabulations provided by the National Center for Education Statistics.

Figure 5: Percentage of All 1992 Public High School Graduates Enrolled in Cooperative Education, by Area of Occupational Preparation



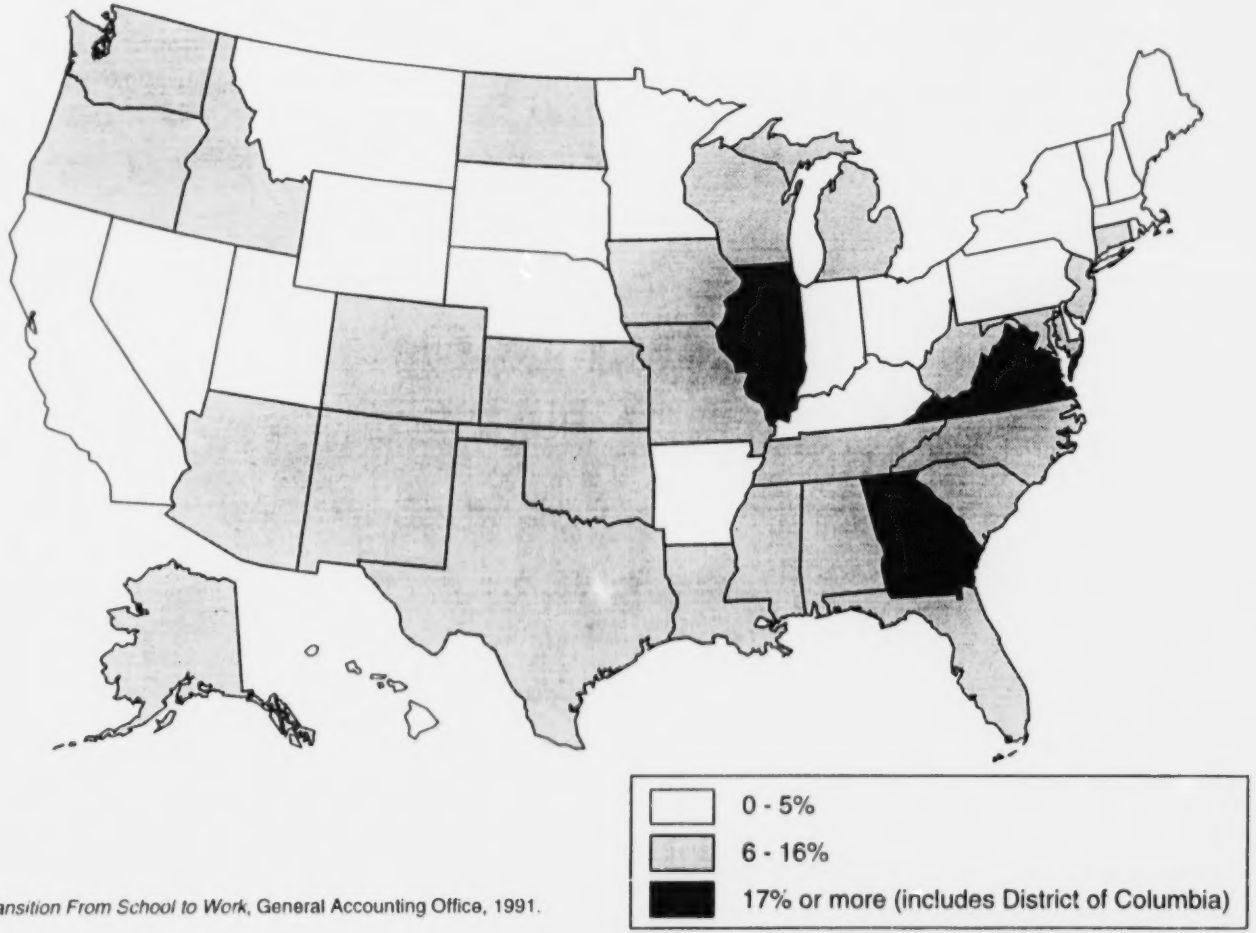
Source: Special tabulations provided by the National Center for Education Statistics.

Students are also enrolled in work experience programs not labeled cooperative education. If these students are included in the data, the total increased to 7.6 percent of all public high school graduates. From the models that guide these programs, we would expect less rigorous training and supervision in these work experience programs. However, as pointed out above, the survey conducted by Stern et al. shows considerable similarities to cooperative education. (For example, 85 percent of schools report having training plans for work experience students, compared with 92 percent for co-op students; the percentages are 80 versus 83 for whether coordinators meet with employers before a student is placed, and 93 versus 97 for whether the employers' evaluations influence students' grades.) From the standpoint of what we have in place to build on, we can use the larger figure of 7.6 percent. This would be about 176,000 high school graduates in 1992. This number of graduates may be compatible with

the 400,000 or so estimate of enrollments for 1989 and 1990, since the larger figure includes all high school students and those who dropped out before graduating.

The co-op enrollment rate varies considerably by state. Figure 6 shows this variation. The highest enrollment percentage are in Illinois, Virginia, and Georgia. Twenty states have enrollments in the range of 0 to 5 percent, and the rest are between six and 16 percent.

Figure 6: Proportion of Eligible High School Students Enrolled in Co-Op by State (1989-90)



Source: *Transition From School to Work*, General Accounting Office, 1991.

Varieties of Cooperative Education

Cooperative education programs vary widely, in terms of work schedules, how much work experience is provided, and whether work assignments begin in the 10th, 11th, or 12th grade. This report draws on several different sets of case studies to provide brief descriptions of successful programs.

- **Socorro High School for the Health Professions, El Paso, Texas**[7]

  A Health Academy

  The program was created in 1991 in response to the area's high demand for health care workers. It is an "academy" within a high school, with an enrollment of about 200 students.

  The co-op part occurs throughout the 12th grade, with students working at least 15 hours a week.

- **Dauphin County Technical School, Harrisburg, Pennsylvania**[8]

  Strong emphasis on integrating academic and vocational instruction

  The school has 800 students and serves six school districts. It started in 1970 as a comprehensive vocational and academic program and then evolved into an occupational cluster approach, integrating academic and vocational instruction within the clusters and alternating on a weekly basis between the two.

  Co-op placements are made in the 12th grade, with students working full-time every other week. Co-op students meet weekly with their shop teachers and write reports on what they are doing. There are articulation agreements with Harrisburg Area Community College and students can earn up to 18 college credits while in high school.

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[7]Edward Pauly, Hilary Kopp, and Joshua Haimson, *Home Grown Lessons: Innovative Programs Linking Work and High School*, Manpower Demonstration Research Corporation, January 1994.

[8]Edward Pauly et al., ibid.

- Ben Davis High School , **Indianapolis, Indiana**[9]

"A Tech Prep" Program

The high school serves over 2,500 students in grades 10 through 12, with about half of its graduates attending two- and four-year colleges. It has a "tech prep" program with the general track being replaced with courses on the application of technology. (In tech prep the last two years of high school are articulated with the first two years of college.)

Co-op opportunities—called internships—are offered to 12th-grade tech prep students, mostly in small businesses that have previously had co-op students. There are formal training agreements and regular visits to the workplace by a co-op teacher. There were about 250 students in tech prep in 1993, and 900 were expected by 1996.

- **Education for Employment (EFE), Kalamazoo County, Michigan**[10]

Off-Site Occupational Program

The program has a variety of arrangements for experience at the worksite. These include half-day job shadowing experiences, paid cooperative education, unpaid externships, specialized training, and multi-year apprenticeships. The goal is to tailor the worksite component to the career goals of the individual student.

In three programs—health, law enforcement, and hospitality—all instruction occurs away from the school site, although some of it may occur in classrooms at the job site. Job sites are provided by the business partners, and the lead instructors are from these sectors and know the business well.

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[9]Edward Pauly et al., ibid.

[10]John Wirt and Gregg Jackson, *Learning to Work: Making the Transition From School to Work*, Office of Technology Assessment, 1995.

- **St. Clair Technical Education Center (TEC), Port Huron, Michigan**[11]

  A Capstone Experience

  TEC is a regional school serving 10 local comprehensive high schools in the St. Clair County school district. The school has 1,100 students, of which 200 are adults. It uses a variety of approaches, including cooperative education, contracted programs, entrepreneurship training, and apprenticeship.

  Over the course of a year, about 100 co-op students participate in a wide range of occupations. Students are referred by instructors in vocational programs. To be recommended for a co-op program, they must have achieved the minimum level of proficiency for all competencies required by the job title and be considered job ready (mature, responsible, and possess good work attitudes). Students are 16- or 17-years-old and begin at the end of the junior or beginning of the senior year. It is considered a "capstoning" experience that applies what the student has learned in the related skills classes. Employers expect to get skilled students.

  TEC has developed a database of over 4,500 employers, and does not find it difficult to recruit new employers. There is high turnover of employers involved in the program because most graduates stay with the employer, but TEC can go back to them after several years when a slot becomes open. TEC will reject worksites not related to a student's skill, jobs students find on their own are not likely to be acceptable, and coordinators visit the worksite once every 16 days.

- **North Bergen High School, North Bergen, New Jersey**[12]

  Academic Track Co-Op Students

  North Bergen High has about 1,900 students, about half White and half minority. It is in a blue-collar,

[11]The General Accounting Office conducted structured field interviews to gather information for *Transition from School to Work*. I am indebted to the GAO for making these unpublished interviews available for this report.

[12]GAO, ibid.

working-class community. At the time of the interview, it had 93 students in co-op education, all in the academic track. About 70 percent of the school's graduates go on to postsecondary education, as do about half of the cooperative education students.

Employers are recruited by the coordinators, who visit new employers and go back to old employers when a slot opens up from a former co-op student leaving. (About 90 percent of co-op students are hired by their employers after graduation.) Occasionally, students find jobs on their own, but a coordinator visits these sites before approving the placements. The businesses are a mix of small and large.

The program offers Distributive Education (DE), Cooperative Office Education (COE), and Cooperative Industrial Education (CIE). Students go to school in the morning and work in the afternoon, working a minimum of 15 hours a week. The typical period of worksite training is a year.

The school as a whole has a low dropout rate, and there were no dropouts from the co-op program during the year of the interview.

One employer, Liz Claiborne, realized the advantage of hiring from a pool of prescreened applicants, which could result in lower hiring costs. They find that the co-op students have better skills and work attitudes than other high school students, and that they are just as mature and sometimes more mature than college students. Claiborne is seeking college educated students and will reimburse tuition for job-related courses.

- **Newberg High School, Newberg, Oregon**[13]

High Admission Standards

Newberg has 1,200 students from a middle-income, rural area; about 90 percent are White. There is no formal tracking in the school. While many programs

[13]GAO, ibid.

admit any student (in the appropriate grade) who applies, to be a co-op student at Newberg you must: (a) be enrolled in a state-approved vocational cluster, (b) have a good attendance record, (c) have at least a 2.0 grade point average (which can be waived for at-risk students), and (d) be recommended for the program by two teachers. Teachers say they recommend their best students. There are about 90 students in the program—75 percent seniors and 25 percent juniors.

The program takes the initiative in recruiting students, working through vocational teachers, explaining the program to juniors and seniors as they register for their courses, mailing a brochure to all parents, and holding an annual parents' night.

In recruiting employers, the program relies on word of mouth, having employers who have been with the program a long time promote it with other employers, getting help from the chamber of commerce and local newspapers, maintaining an active business advisory committee, and asking parents to encourage their employers to contact the school.

Few students drop out of the program, and about half go to college, compared to 35 to 40 percent of the school as a whole.

- **Patterson Career Center, Dayton, Ohio**[14]

Eight Decades of Experience; Reengineered in the 1990s

In 1913, John H. Patterson and other Dayton businessmen proposed the development of what came to be called the Cooperative High School to the Dayton Board of Education. Students alternated a week on the job and a week in school. Patterson was selective and sent more students to college than did other Dayton high schools. Beginning in the 1970s, large changes occurred. Patterson ceased to be selective, the student body became increasingly disadvantaged,

[14]Bryna Shore Fraser and Scott Menzel, *Patterson Career Center Case Study Report*, July 1995 (part of a series of publications from the project, *Study of School-to-Work Reform Initiatives*).

and the economic base began shifting from manufacturing to service. Quality job placements were harder to find, students were less prepared, and employers became less satisfied with the students.

What had become Patterson Career Center underwent drastic change with the arrival of a new principal in 1992-93. The program was rebuilt under his Leadership 2,000 initiative to develop a commonly held strategic direction among faculty, administration, community leaders, and parents. What emerged was a commitment to a performance-based, interdisciplinary academic/vocational model that encompasses: career exploration, vocational preparation, assessment, core values and life skills, cooperative education, and articulation with higher education and the business community.

Patterson has about 400 juniors and seniors participating in an 11-month cooperative program. Students are not placed in jobs until they are deemed job-ready, and they may be returned to a preparedness curriculum. This has increased the confidence of employers, who had witnessed a deterioration in student capabilities in earlier years. Eighth-graders who go to Patterson can choose from more than 15 vocational programs, using the co-op approach, that prepare them to enter college, other advanced training, or the workforce. During the 1992-93 school year, 232 students were employed with 123 employers.

The offerings are broad and include accounting, advertising design, auto mechanics, drafting, health occupations, industrial electronics, marketing education, office specialist, administrative assistant, auto body repair, chef training/restaurant management, graphic communications, medical/dental arts, machine trades, and custodial maintenance.

Evaluations of Cooperative Education

One indication of the extent to which co-op education has been ignored in the school reform and school-to-work transition era of the last ten years is that so little well structured evaluation is available.

One indication of the extent to which co-op education has been ignored in the school reform and school-to-work transition era of the past 10 years is that so little well-structured evaluation is available. While a couple of studies have used longitudinal data from the High School and Beyond survey and the Youth Labor Market Experience survey, they have had to use data on all student work programs and were not able to isolate the better defined cooperative education programs. The work-study programs that were included in these studies may have been designed simply to increase the income of disadvantaged youth.

To find out whether the co-op approach is effective in improving the school-to-work transition the following actions and procedures need to be in place:

- Programs that are striving to develop quality work experiences and well conceived written training plans should be studied. In too many cases in what is called cooperative education, students find their own jobs and these become the co-op jobs, with little school involvement. In these situations, the results are not likely to be different than they would be for students working in regular part-time jobs.

- The characteristics of co-op students and students in a comparison group need to be well matched.

- The quality of co-op programs should include whether they have the other components of good education—an insistence on academic achievement and good occupational instruction while in school.

Ideally, the evaluation should be of a quality of those carried out by Public Private Ventures and the Manpower Research Development Corporation. Of course, the use of random assignment is more difficult in public education, but it is not impossible, particularly in a situation where there are fewer co-op slots available than there are students who want them.

What is available by way of evaluation is ably summarized by David Stern and his colleagues.[15]

- The most recent information, and probably the best, comes from an analysis of a longitudinal survey sponsored by the National Center for Research in Vocational Education.[16] Students who were seniors in 1988 and 1989 were followed once a year until 1992. Of co-op students, almost half were both going to post-secondary education and working in 1992, a third were just working, and 16 percent were just going to school. Of those who did not work during their senior year, a majority were going to school (but not working), and a whopping 27 percent were neither working nor going to school, compared with just four percent of co-op students. Students who had unsupervised work experience (regular part-time jobs) were more likely than co-op students to be going to school—a total of 83 percent, compared to 63 percent for co-op students.

  The wages of former co-op students were significantly higher than those of students who did not participate—$6.40 per hour, compared to $5.94 per hour. The authors point out that the higher wages are mostly due to those who continued working with their co-op employer after graduation; if they are removed from the sample, the co-op students' mean wages were $6.22, a difference that did not reach statistical significance. The authors also point out that benefits to the co-op students who did not stay with their co-op employers "appear not to be portable," and they speculate that this may be due to the fact these students do not obtain recognized skill certification.

- A New York study and a GAO study found that co-op students were more likely to be working after graduation. They also found that they were less likely to continue with their education (a higher proportion were in the vocational track).

- In a study of 11 high schools identified by the GAO as having well-run co-op programs, the GAO concluded that well-run programs help students both in finding permanent jobs and in preparing for further education.

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[15]David Stern et al., op cit.

[16]David Stern et al., op cit.

This points out the necessity for examining results of good programs that reflect the model; we need to distinguish between what the model can achieve and situations where the model is not being followed. (Of course, we also need to consider how the model itself can improve; Stern et al. point out the lack of a skill credential in the present model.)

James R. Stone and his colleagues summed up the evidence this way:

> *. . . "available evidence suggests that students who . . . participate in school-related [work-based learning] programs, provided they are well-run, gain certain advantages over those who work but whose work is not connected to school. When compared to working students who are not involved in cooperative vocational education, these advantages include faster transition into full-time employment after high school, fewer defiant behaviors while in school, more acceptable work attitudes, and a greater sense that their education can help them in the workplace."*[17]

A recent study . . . in which employers who participated in 18 work-based programs, mostly co-op programs, found that they were quite pleased with the students and thought that most had been productive workers.

Another way to evaluate the effectiveness of co-op approaches is to spot shortcomings in different co-op programs. For example, in their 1991 study, Stern et al. report that a fifth of the co-op programs in the nation do not specify the improvement of reading, writing, arithmetic, or other mathematics in their co-op training plans.

How satisfied have employers been with cooperative education? A recent study conducted by Lynn and Wills in which employers who participated in 18 work-based programs, mostly co-op programs, found that they were quite pleased with the students and thought that most had been productive workers.[18]

Based on what we know now, mostly about *average* cooperative education, co-op students earn higher wages a few years out of high school and are less likely to continue their schooling than their peers who did not participate in co-op education.

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[17]James R. Stone et al., Cooperative Vocational Education in the Urban School," *Education and Urban Society*, May 1995.

[18]I. Lynn and J. Wills, *School Lessons: Work Lessons*, Institute for Educational Leadership, Washington, DC, 1994.

The extent to which the latter is because they were already more work oriented, or the co-op program itself changed their expectations, cannot be sorted out empirically with existing research. Two-thirds of co-op students *were* enrolled in school two or three years after graduation. In looking at highly regarded co-op programs, the GAO also found positive outcomes in their labor market experience, and that these well-run programs helped in preparing for further education.

The currently available information tends to be generally favorable, but better information would better inform decisions about investment in good *cooperative education.*

If we become serious about taking advantage of this well-established approach to the use of the worksite in secondary education, we will likely become serious about having carefully structured evaluations. The currently available information tends to be generally favorable, but better information would better inform decisions about investment in *good* cooperative education.

Expanding and Improving Cooperative Education

In the last six or so years, the school-to-work transition has received considerable national attention, support through new federal legislation, and strong leadership from governors in some states. The use of the worksite in such efforts is considered a cornerstone in creating strong school to work programs. Despite all this, cooperative education has been neglected or ignored at the national level, with some exceptions, and is likely in a state of slow decline, even as general interest in work-based learning increases. One estimate is that enrollment in co-op programs dropped 20 percent between the late 1970s and that late 1980s.[19] In a recent look at urban areas, James Stone concluded that "if the trends in two major urban areas in the Midwest are indicative, the trend in participation is downward. In one city, there are none left, and in the other, there have been sharp reductions."

The use of the worksite is considered a cornerstone in creating strong school to work programs.

As stated earlier, the neglect extends to not knowing very much about what *is* happening to cooperative education enrollments. The Department of Education suspended collecting data in the 1980s. It did collect data in 1990-91, and published some information in late 1995 on average Carnegie Units students obtained, but not on the percentages of students who had cooperative education courses.[20] Information on enrollments was obtained in 1989-90 in an ad hoc study by the GAO.

So if we are serious about encouraging expansion of the most prevalent form of worksite learning the nation has, we must at least start reporting on trends in a timely fashion.

Cooperative education used to be specifically supported financially in the Federal Vocational Education Act. It was a category for funding in the 1960s and 1970s. However, the 1990 Vocational Education Amendments, the Perkins Act, *dropped* categorical funding and only mentions co-op education twice. In contrast, youth apprenticeship is mentioned six times. In relating this information, David Stern and his colleagues conclude:

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[19]T. Bailey and D. Merritt, *The School-to-Work Transition and Youth Apprenticeship*, Manpower Demonstration Research Corporation, 1993.

[20]The data are available, however, and I was supplied by NCES with special tabulations. They are reported on p. 10.

The lack of attention to cooperative education in the latest federal law on vocational education is symptomatic. Until quite recently, when there has been some renewed interest, cooperative education has been virtually absent from policy discussions about preparing the workforce.

. . . lack of interest has also meant lack of evaluation, especially for cooperative education in high schools . . . . As a result there have been only one or two significant inquiries into high school cooperative education.[21]

There has been attention to the work-based component of the school-to-work transition during the 1990s. However, that attention has focused almost wholly on what is called youth apprenticeship. Youth apprenticeship is an attempt to create an American version of the German dual apprenticeship system, and more generally, apprenticeship as it is practiced extensively in Europe, beginning at ages 16 and 17. The American system of apprenticeship, much more limited in its occupational coverage, has evolved into a program for those much older, with an average age of about 29. Several organizations have promoted, generated, and administered grants to demonstration programs, funded by the Departments of Labor and Education, as well as by foundations.

So far, these demonstration programs involve a relatively small number of enrollees, in the hundreds or low thousands. They have the laudable purpose of being rigorous about training provided at the worksite and providing recognized skill certification. They are linked, for the most part, to a postsecondary education phase and do not provide a recognized exit point at the end of high school. We should, I believe, expand this approach as much as we can. But we should not ignore the possibilities of building on the cooperative education we now have, improving it where needed, and expanding it to a much larger scale.

There are, of course, obstacles to expanding cooperative education. But a major obstacle has been a lack of interest in doing so.

There are, of course, obstacles to expanding cooperative education. But a major obstacle has been a lack of interest in doing so. As for the question of how realistic the prospects are for considerable expansion, existing experience is itself a basis for considerable optimism. According to the GAO survey, about 430,000 juniors and seniors were enrolled a few

[21]David Stern et al., op. cit.

years ago, about 8 percent of high school juniors and seniors. But there was large variation among the states.

If all states just reached the rate of enrollments in cooperative education achieved by the three states with the highest percentage of students enrolled—Illinois, Virginia, and Georgia—enrollments would more than double, and we would be approaching a million enrollees and a fifth of all juniors and seniors.

What would it take to expand cooperative education? Strong interest and leadership at the national level would likely be necessary, simply because this is an area of education created by federal law, and major changes in direction have come about through federal leadership.

What would it take to expand cooperative education? Strong interest and leadership at the national level would likely be necessary, simply because this is an area of education created by federal law, and major changes in direction have come about through federal leadership. The lack of interest shown by Washington has likely sent a signal to state and local levels that this approach was not in favor—particularly in view of the strong signals sent recently on integrating academic and vocational instruction, tech prep, and youth apprenticeship. Resources made available to organizations such as Jobs for the Future, the National Alliance of Business, the National Institute for Work and Learning, and the Council of Chief State School Officers could help with leadership at a national level.

It is generally believed that getting employers involved is difficult and a major impediment to reaching high volumes in the use of the worksite. But there is no reason to believe that employers in the other states are less willing to participate than those in Illinois, Virginia, and Georgia.

Efforts to expand should be coupled with efforts to improve and raise standards. In the GAO study[22], state co-op directors suggested ways they thought co-op programs could be improved:

- Develop industry-recognized skill standards and certification of skill attainment. (Although in interviews with employers GAO found a high rate of permanent job offers, which "suggests that they are satisfied with youth skill acquisition in co-op.")
- Provide strong federal and state government leadership to promote cooperative education, develop com-

[22]GAO, op cit.

mon reporting requirements, and expand recruitment activities.

- Encourage employer assistance in developing school curriculum.

- Have employers assist in creating opportunities for school teachers to spend time at the workplace to update their knowledge.

. . . a record *developed with the participation of employers is practical. It could incorporate those things employers are looking for, based on school records and teacher and co-op employer ratings.*

Recognized skill standards will likely develop very slowly, in terms of the nation as a whole, given the pace of recent progress. However, a *record* developed with the participation of employers is practical. It could incorporate those things employers are looking for, based on school records and teacher and co-op employer ratings. A computerized system is available in Worklink™, from Educational Testing Service, which also will provide information to employers electronically. Another version of a record system is the Career Passport, available through the National Institute for Work and Learning.

As part of an effort by the National Center for Research in Vocational Education, called "Continuous Improvement in Programs Connecting School and Work," a conference was held in Atlanta, Georgia, on improving cooperative education. It included teachers, employers, and students.[23] They arrived at nine recommendations.

- More careful student selection. Some students, they said, are not interested in the curriculum, but only want to be released early to go to their part-time jobs.

- Better placement of students in jobs. They said many students already have part-time jobs, and these become their co-op jobs. Co-op jobs should be those developed by the program into which the students are placed.

- More emphasis on developing a "training sponsor" at each employer site, making sure these sponsors know their responsibilities, and establishing criteria to

[23]James R. Stone III, "Cooperative Vocational Education in the Urban School, Towards a Systems Approach," in *Educational and Urban Society*, Volume 27, Number 3, May 1995.

evaluate the qualifications of persons who serve as sponsors.

- Better use of the training agreements. Too often employers simply file these agreements and never use them.

- Better training plans, tailored to the curriculum and the students. Too often, generic forms are employed and are not used.

- Regular visits to the worksite by teacher coordinators. Too often, visits only occur in the beginning of a program.

- Better student evaluation. In many cases, they said, the form was simply sent to the employer to determine a grade. Often there is little congruence between the evaluation criteria and the training plan.

- Structural changes in the curriculum, such as modifying or diversifying it to enable students to select courses to prepare adequately for the cooperative program.

- Better use of advisory committees.

In the case of each of these nine areas targeted for improvement, the participants were specific about a series of structural and process changes. These would be a good starting point for efforts to make cooperative education more effective.[24] Similar recommendations were made in Lynn and Wills' *School Lessons: Work Lessons*. Also, the characteristics identified in the Office of Technology Assessment's book *Learning to Work: Making the Transition From School to Work*[25], published in 1995, are very useful as starting points.

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[24]For a complete report, see J.R. Stone III et al., *Continuous Improvement in Programs Connecting School and Work*, National Center for Research in Vocational Education, University of California, 1994.

[25]Wirt and Jackson, op cit.

Conclusion

Since the passage of the School to Work Opportunities Act, there has been considerable momentum to better relate school and work, and to use the worksite as an integral part of high school education and training. School-to-work models have several components and moving parts, including integrating academic and vocational education and preparing all youth for further education or employment after high school graduation. But there is wide agreement that a work-based component is essential.

Also, most agree that getting to large volumes in the use of the worksite will be the most difficult part—recruiting employers to open their businesses to students and giving them the training and mentoring they need. We do have an established work-based education program of considerable size in cooperative education. Rather than ignore it and letting it languish, we can use this program, rejuvenate it, and build on it to help create a full school-to-work system. Of course, other formulations of work-based education—and more rigorous models—should remain as an objective. There is no reason to aim for a single standardized model; within cooperative education itself there are a variety of valid approaches.